

Use of red cabbage (*Brassica oleracea* var. *capitata* f. *rubra*) as nutritional food

MAIMOONA KHAN, SWAPANIL YADAV, NAMITA CHAUHAN AND AQUIL AHMAD

Department of Biotechnology and Microbiology, Gandhi Faiz-e-Aam College, SHAHJAHANPUR (U.P.) INDIA

(Accepted : May, 2010)

Key words : Anti-inflammatory, Red cabbage, Calorific value

In European folk medicine, cabbage leaves has anti-inflammatory properties. Red cabbage is also effective in relieving painfully engorged breasts in breast feeding women. To evaluate importance in human nutrition red cabbage was analyzed for their proximate composition and mineral contents. The results of the present study showed that red cabbage contained appropriate amount of essential nutrients. Moisture content was 88.66%. Protein, fat and carbohydrate were 0.35, 0.25 and 8.46%, respectively. Fiber and ash was 1.8 and 0.88%, respectively. Iron, phosphorus and calcium were 0.33, 19.90 and 3.56%, respectively. Calorific value was 17.69.

Red cabbage (*Brassica oleracea* var. *capitata* f. *rubra*) a sort of cabbage also known as Red Kraut is member of family Brassicaceae. Certain cruciferous vegetables (mustard family) of the genus *Brassica* including cauliflower, broccoli, cabbage, and Brussels sprouts have been studied extensively because of their high nutritional values as they are rich sources of antioxidants, vitamins, and fiber but contain little fat and energy (Mukherjee *et al.*, 2008). Its leaves are used to treat acute inflammation. A paste of raw cabbage may be placed in a cabbage leaf and wrapped around the affected area to reduce discomfort. Some claim it is effective in relieving painfully breasts in breast feeding women. Also used as an adjuvant therapy for recurrent respiratory papillomatosis, a disease of the head and neck caused by human papillomavirus. Its leaves are used in salad and for preparation of soups. Its leaves are colored dark red or purple. The juice of red cabbage can be used as a home made pH indicator, turning red in acid and blue in basic solutions. Red cabbage can add good amount of carbohydrates, minerals and fiber to the diet. In order to aware the people about nutritional value of red cabbage

the present study was undertaken to determine the mineral constituents and proximate composition .

Moisture was determined by oven dehydration method at 105^o C up to the constant weight. Crude protein was determined by estimated the nitrogen content of the food minerals, using micro Kjeldhal method. Crude fat was determined by ether extraction method using soxhlet apparatus. Crude fiber was determined by acid digestion and alkali digestion. Ash content was determined in muffle furnace at 550^o C for 6 hours. For all these determinations powdered and oven dried samples were used in triplicate. Food energy calculation was derived by multiplying the percentage of crude protein and carbohydrate by 4.1 and crude fat by 9.3 (Khalil and Saleemullah, 2004). For minerals analysis *viz.*, phosphorus (P) and calcium (Ca), the samples were digested by using HC₁O₄/HNO₃ method (Steekel and Flannery, 1965) and for the determination of micro mineral iron (Fe), the samples were digested by dry ash method (Isaac and Johnson, 1975).

Biochemical composition and energy value of red cabbage is shown in Table 1. The moisture content in this vegetable was very high 88.66%. After moisture the second major chemical constituent found was carbohydrate 8.46%, therefore, its energy value was found to be very high. Crude protein content was estimated 0.35%, The crude fat analysis showed that vegetables are deficient in fats (0.25%). This makes them good for health. The result shows that ash contents were 0.88%. The crude fiber content in red cabbage was 1.8%, which lowers the body cholesterol level; consequently decrease the risk of cardiovascular diseases. Iron, phosphorus and calcium were 0.33%, 19.90% and 3.56%, respectively. Fe is an important constituent of Hb. Calcium and phosphorus are the minerals present in the largest quantity

Table 1: Biochemical composition of red cabbage

Essential nutrients	Percentage present in red cabbage
Moisture	88.66%
Ash	0.88%
Protein	0.35%
Phosphorus	19.90%
Iron	0.33%
Fat	0.25%
Fiber	1.8%
Calcium	3.56%
Carbohydrate	8.46%
Calorific value	17.69

in the structure of the body and in the bones. Our vegetables should be good for health and provide all the essential nutrients for normal body functions when consumed in appropriate combination.

From the data as shown in Table 1 it is concluded that red cabbage is nutritious foods that provides sufficient amount of nutrients needed for normal body function and maintenance. Red cabbage is poor source of fat that makes good food for obese people. It is good source of fiber and can decrease the concentration of high cholesterol level in body. From this research we find that

vegetables intake in different combination is essential for the maintenance of healthy life and normal body functioning.

REFERENCES

- Isaac, R. R. and Johnson, W.C.** (1975). Collaborative study of wet and dry ashing technique for elemental analysis of plant tissue by Atomic Absorption Spectrophotometer. *J. AOAC.*, **58**: 436-440.
- Khalil, I. A. and Saleemullah** (2004). Chemistry: Bio-analytical chemistry. T. S. Printers, Pakistan.
- Mukherjee, S., Gangopadhyay, H. and Das, D.K.** (2008). Broccoli: A unique vegetable that protects mammalian hearts through the redox cycling of the thioredoxin superfamily. *J. agric. Food Chem.*, **56**(2): 609-617
- Steekel, J.E. and Flannery, R.L.** (1965). Automated determination of P, K, Ca, Na, Mg in wet digestion solution of plant tissues. In: Technicon symposia, Automation in analytical chemistry. pp.116-122.

